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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,448	11/03/2003	David Sparrowe	MERCK-2775	3497
23599 7590 09/17/2007 MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			EXAMINER LISTVOYB, GREGORY	
			ART UNIT 1711	PAPER NUMBER
			MAIL DATE 09/17/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/698,448

Applicant(s)

SPARROWE ET AL.

Examiner

Gregory Listvoyb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 18-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17, 21-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 18-20 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected process for manufacture of dielectric layer, there being no allowable generic or linking claim. In the reply filed on 7/06/07 no arguments related to this Election/Restriction are indicated.

The request for rejoinder of the non-elected process claims 18-20 of Group II, upon determination that the device claims are allowable is acknowledged.

Therefore, this Election/Restriction action is made FINAL.

### ***Claim Rejections - 35 USC § 103***

Claims 1-17, 21-30, 33, 38-43 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US patent 5330840, cited in the previous Office Action) herein Chen in combination with Knudsen (US 2002/0176989, cited in the previous Office Action) herein Knudsen.

Chen discloses a composition formed with cross-linkable melamine formaldehyde resin 2-80% of Cymel 303 as well as Cymel 380 and 385 (Column 6, line 5 and Claim 3), which is identical to one used in the Application examined (see page 24,

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mixture M1 of the Application), 25-60% of polyurethane-siloxane (Column 6, line 5 and Claim 1), 0.001-1% of acid catalyst (Column 7, line 5, meeting the limitations of newly added Claims 30 and 39) and a solvent.

In reference to Claim 16 and newly added Claims 29 and 40, Chen discloses the use of 1,4 butanediol (see Table).

Regarding newly added Claim 33, Chen discloses a solvent THF (i.e. ether).

In reference to newly added Claim 41, Chen discloses a coating with thickness of 0.5-50 um (see Column 7, line 30).

Chen does not teach the use of the above composition as an electronic device (i.e. circuit board) and ceramic materials in the composition.

Knudsen discloses a cross-linked polyurethane based material used as a dielectric layer in printed circuit boards and other electronic devices (Abstract, line 0031 line 0051), which can contain ceramic materials (see line 0019).

The above ceramics increase dielectric resistance of the coating.

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Since Chen's composition has an excellent flexibility, adhesion to a metal surface and low dielectric constant, it would be obvious to a person with ordinary skills in the art to use it in Knudsen's electronic device, including circuit boards.

It would have been be obvious to a person of ordinary skills in the art to use ceramic material in Chen's composition to enhance its dielectric properties.

Regarding newly added Claim 42, Chen and Knudsen do not disclose dielectric layer with dielectric constant greater or equal 4.

However, since Chen's composition essentially has the same base material (i.e. up to 80% of Cymel) and thickness of 0.5-50  $\mu\text{m}$ , it inherently has the same dielectric properties as the dielectric of the Application examined.

Claims 31-37 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Knudsen and further view of Barancyk et al (US 2004/0044165) herein Baranchyk.

Chen discloses a composition formed with cross-linkable melamine coating (see discussion above).

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Knudsen discloses a cross-linked polyurethane based material used as a dielectric layer in an electronic device (see discussion above).

Chen and Knudsen do not disclose para-toluene sulphonic acid as a catalyst, surfactant and a butanol as a solvent.

Baranchyk discloses a coating composition based on siloxanes (see line 0027), urethanes (see line 0049), diols (line 0061) and cross-linking agent, based on Cymel (see line 0082). Note that Baranchyk's composition includes the same ingredients as Chen's one.

Baranchyk uses para-toluene sulphonic acid as a catalyst (see line 0215). The advantage of the above catalyst compare to TFA used by Chen is that para-toluene sulphonic acid has much higher boiling point, making possible high temperature cure.

Therefore, it would have been obvious to a person of ordinary skills in the art to use para-toluene sulphonic acid as a catalyst to perform high temperature curing process.

Baranchyk uses 5-80% of butanol and ketones as a solvent (see lines 0213-0214). Butanol is a commonly used solvent with hydrophilic-lipophilic properties. The

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advantage of butanol over THF or chlorinated hydrocarbons used by Chen is its lower toxicity and price.

Therefore, it would have been obvious to a person of ordinary skills in the art to use butanol as a solvent in Chen's composition, due to its lower toxicity and price.

Baranchyk uses polyoxyethylene (Pluronic) as a surface active agent (see line 0199). The use of the above agent allows better contact between the composition and a substrate.

Therefore, it would have been obvious to a person of ordinary skills in the art to use polyoxyethylene (Pluronic) as a surface active agent in Chen's composition, providing better contact between a substrate and the composition.

### ***Response to Arguments***

Applicant's arguments filed on 7/06/2007 regarding rejection under 35 U.S.C. 103(a) over Chen in combination with Knudsen have been fully considered but they are not persuasive.

Chen discloses 2-80% of crosslinking agent in the final coating composition.

Although Chen does not cited more than 75% of the above agent in his Examples, the examiner relied on the full disclosure of the Chen's Patent.

Regarding the Argument that Knudsen does not use polyurethane, Knudsen uses this polymer in his composition (see line 0051).

Rejections based on Sinclair, Shipley, Guillet, Gardon and Imken are withdrawn due to a new limitation of Claim 1, stating that composition contains at least 75% of crosslinking agent.

Rejection based on Baranchyk is necessitated by amendment.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



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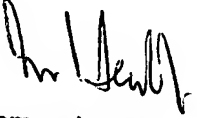
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GL  
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James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700

Gregory Listvoyb  
Examiner  
Art Unit 1711